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Dwellers participation to achieve livable housing in Grudo rental flats

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Abstract

The Surabaya city government has intensively built rental flats as an effort to reduce the problem of housing provision in urban areas, especially for low income people living in squatter settlement. This strategy is done to implement the urban renewal program and to generate the livable city program. The success of the livable city program is determined by the community participation. A regulation that is well planned by the government will not succeed without the participation of the community. Through participation, dwellers can influence the design of new systems and adapt to their needs. Therefore, the community is the determinant of city quality. The case studies in this research is Grudo rented flats. This study was conducted to determine the level of dweller's participation in flats as an essential component to create livable place, which may positively influence the wider environment. Livable places can positively impact dweller's productivity and create a comfortable atmosphere. It also can be transmitted to the people who live around the flats so that they are motivated to establish their own livable home. Competition to achieve title as livable place could also increase the willingness of the community in improving quality of its environment. The method used is descriptive qualitative, using data from Surabaya City Development Board and surveys. From this research, it can be concluded that Grudo is a habitable flat. The degree (level) of community participation is good, that is partnership.

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1. Introduction

Flat is one of the alternatives to solve the high density problem in housing and settlement especially in urban area. The advantages of building flat are: it can reduce the use of land, accommodate more household, creates legal open spaces for city and one of urban renewal strategy. The development of low cost flats is meant to provide improved shelter options for low-income communities and households. Flat should not only be cheap but also comfortable to live in order to fulfill the need of house that is well occupied and improve environmental quality. One of the rental flat in Surabaya is Grudo. This housing development provides new flats that are clean, and have wide green, open spaces. Grudo rental flats have been built on state-owned land in Surabaya. It was once a kampung (urban village) that not being used (Fig 1). Kampung is a form of informal settlements in Indonesia. This flat is provided for the resident of kampung whose house was demolished due to city renewal. Grudo Flat is located in center of Surabaya city, in Dr. Sutomo street, Tegalsari distric (Fig 2).

Fig. 1. The siteplan of Grudo flat before development
Source: www.wikimapia.org

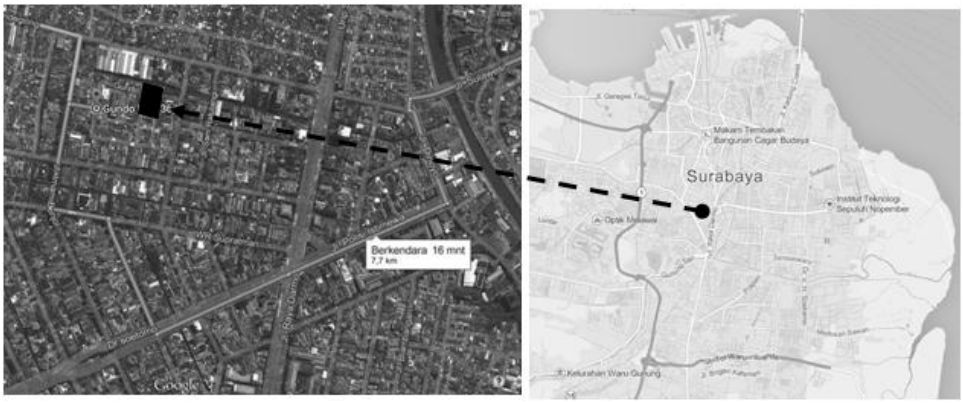

Fig 2. Grudo flat location
Source: www.googlemaps.com

2. Research theory and methods

2.1. Livable Housing

Livable housing concept can be obtained from the definition of livable city because housing and settlements often occupy maximum area in a city. This domination makes housing and settlements as a major consideration for managing the city. Thus livable city concept can be applied to smaller scope that is residential with some adjustments.

The concept of livable city is expected to mitigate the deleterious impacts of rapid urbanization- urban issues, such as environmental pollution, water shortage, social conflicts, traffic jam, skyrocketing house price, and social polarization which continue to intensify. A narrow understanding of livable city is would imply an improved quality of life, while more widely it also pertains to the natural and cultural environments. Moreover, economic progress is also essential for creating a livable city (Kai & Chengxin, 2013). One of the concepts that supports the livable city concept is "smart growth", which aims for improvement of life quality (in this case focuses on physical health), not just about transportation. This concept should be applied at all levels, so the city could achieve this potential optimally (Geller, 2003).

The sustainable concept could also determine by building design that takes into account the environmental impact (Jenks and Dempsey, 2005). So that the livable flat design can contribute in supporting livable city. In addition, there is a livable community concept as a basic part to address urban problems. Six principles of livable community based on Young (2013):

- Provide more transportation choices
- Promote equitable, affordable housing
- Enhance economic competitiveness
- Support existing communities
- Coordinate and leverage federal policies and investment
- Value communities and neighbourhoods

By supporting the existence of the community and help them meet their needs, it will reduce social problems in the city. This will make the city more convenient for livable. It can be said to embody livable city was not just about meet the needs of physical, more than that, the main purpose is public satisfaction of the city.

To obtain indicators of livable city, researchers require a comparison of several indicators that already exist. All index are essentially describing the same thing, but with a different way of presenting. The goal is to find common ground and look for indicators that can be applied on a smaller scale, flat housing. Here are some indicators issued by various institutions:

Table 1. Comparison of several indicators

Asian Green City Index	Eco City Index
• Energy and CO2 • Transport • Water • Air quality • Land use and buildings • Waste • Sanitation • Environmental governance	• Energy and Climate • Water quality, availability, and treatment • Air quality, Waste • Transportation • Economic Health • Land use and urban form • Demographics and social health

Sustainable Cities Index 2010
• Environmental performance indicators (air quality, biodiversity, household waste, ecological footprint) • Quality of life indicators (employment, transport, education, health, green space) • Future-proofing indicators (climate change, local food, economy, recycling)

Sources: Economist Intelligence Unit, Williams et al, 2012, & Forum for the Future, 2010

2.2. Principle of Participation

"We shape our buildings; thereafter they shape us."
Winston Churchil

This quote shows the reciprocal relationship between the building and its users. Both influence each other so that the success of the design cannot be seen only on the side of the building. In the user side, there is a challenge to design an architecture that can be used by everyone or universal design. Universal design is the design ideas that can be used by people of all abilities. Seven universal design principles which have equitable use; flexibility of use; simple and intuitive use; perceptible information; tolerance for error; low physical effort; size and space for approach and use (Young, 2013). So that user participation in evaluation of architectural design becomes an important aspect for design improvements.

Participation can be measured by assessing the specific task, activity, and user behavior shown during the system development process. Involvement and participation can affect user attitudes. Through participation, user can influence the design of new systems and adapt to their needs. They may develop a feeling of belonging and a better understanding of the new system, so the existence of this system facilitates their affairs (Barki & Hartwick, 1994). If a program is to be implemented properly then the public need to participate. It is intended that the new program according to the needs of the community.

User participation is essential to develop sustainable housing. Therefore, the design of housing should be flexible so that residents can make modifications (Jusan, 2010). While research on the participation of women showed that women only play a major role in home care rather than the construction and planning process. Because women thought that the design process is the responsibility of men as heads of households. Women's empowerment in housing provision can be improved through a mindset reorientation on housing responsibilities (Asiyanbola & Filani, 2008). The important in these theories is the flexibility of design and mindset arrangement. Communities will participate when they feel they have the same responsible for the realization of a good environment. It will be difficult to achieve if the home design/sustainable programs are not flexible. According to Arnstein (1969), public participation in the planning phase can be measured by the extent of involvement based on the degree of Arnstein. Level of community participation distinguished in several names. However, the explanation of the name is less specific. So there is the difficulty to establish an appropriate level of participation. Based on the explanation of Arnstein at the highest participation rate, it is known that the participation not only includes the participation of the inhabitants but also other stakeholders who took part in the construction. So participation can not only be seen from the user side. It requires an analysis of other parties who participated in the development process. Levels according to the degree of involvement of community participation by Arnstein (1969), as in the following table:

Table 2. Degree of community participation

No.	Degree of community participation	Description
1	Citizen Control	The real dweller participation has been built. The dwellers and other stakeholder have their own rights and responsibility in decision making.
2	Delegated Power	
3	Partnership	
4	Placation	The community has been invited to discuss their wishes and ideas. But a full decision-making is under the authority of the government
5	Consultation	
6	Information	
7	Therapy	The community only as the object of an activity and not seen as a form of public participation.
8	Manipulation	

Source: Arnstein (1969)

The existence of livable community concept is based on a sustainable concept. Community becomes a tool to make it happen because they are most aware of the issue and their needs. Community is expected to be more involved in the policy-making process. Livable community needs to be equipped with adequate infrastructure in order to improve community spirit. The state can promote livability by enabling community participation that leads to by creating community-based decisions. There is no single solution for all to realize livability because every place

has different characteristics. So that "the livability of a place defined by communities of that place" (Fischer, 2000). It shows that the community is a key determinant of livability.

Tools to achieve sustainable concept could be the ability, technology, tactics, and accessible information to the public, also control the necessities of life: food, water, energy, and waste management by the public. Sustainable concepts have various challenges such as dependence on renewable technology experts that is limited, capitalism, and consumerism (Kellogg and Pettigrew, 2008). The term sustainability is a radical approach that allows people to take control over basic resources. Autonomous development becomes an important component in the concept of sustainable design criteria, namely affordability, use of local materials, simplicity, user capabilities, ease of implementation, and decentralization. Autonomy also requires public participation (Kellogg and Pettigrew, 2008). Community initiatives have a major role in actualizing a sustainable concept. So the support of the community is important thing for livable concept.

The most important elements of sustainable city are human, culture, and lifestyle. Urban design and building cannot determine human habits but can encourage them to actualize the sustainable city. To support sustainable urban design required the integration of technology and the active participation of society (Jenks and Dempsey, 2005). Community participation can be improved if the community aware about their role. Therefore, there should be socialization to raise awareness and provide training on the contribution that can be given by community.

2.3. Flat Housing

More and more people live in the city, but the city cannot be expanded. This can lead to a variety of challenges and potential, depending on how the government policy is implemented and the support of the citizens. Jenks and Dempsey (2005) argue that creating mixed-use environments, which require high population densities, can help to create a sustainable city by using the concept of a mixed-use environment, required high population density. However if not managed properly it will cause various problems. UN Habitat (2012) stated that slums become one of the major problems in developing countries. Slums with inadequate design can cause a negative impact on humans and the environment. According to Indonesian Housing and Settlements Law No. 1 of 2011, a slum is uninhabitable due to the irregularity of the building, the high building density, and the quality of the buildings and facilities that are not eligible. Slums occur because of limited space in the city and home prices that are not affordable. Slums need to be removed for the benefit of humans and the environment.

Flat development is one of the ways to reduce slums in Surabaya. According to Law no. 20 in 2011, the goals are:

- to reduce the extent of development of flat housing and prevent slums;
- improve the efficiency and effectiveness of the use of space and land, as well as providing green space in urban areas to create complete residential areas;
- ensure the fulfillment of the needs of decent and affordable flat housing, especially for low income people in a healthy environment, safe, harmonious, and sustainable within a governance system that is integrated housing and settlement.

Table 3 is a combination and result of the adjustment of existing indicator for flat housing in Surabaya.

Table 3. Housing liveability indicator

No	Aspect	Factor	Indicator	Standard
1.	Human Development	Access	Housing	wide 10 M^2 per capita
			Education	Free charge of school
			Health	Health insurance
				Closeness to health facility
		Connectivity	The distance of facilities to the flat	Closeness to housing facility
			Non-motor road	The length of non-motor road 1000 people
2	Economic Capabilities	Growth	Community Participation	Economic outcome (urban farming)
				Online business
			Ability to Buy	Buying ability to basic price ratio

3	Preservation of Environment	Environmental Quality	Water Consumption	Water consumption per unit
				% people that covered by the service
			Green Open Space	Percentage per total flat site
			Biodiversity Activity	The type of activity
		Waste management	Waste	The amount of waste
			The implementation 3R	3R Waste amount
			Water waste management	Amount of waste water treatment plant per 1000 people
		Comfort	Services	% people that covered by the service
		Energy	Development of green technology	Availability
4	Institutional Support	Ecological policy	Green Building Policy	Total of the policy
			City greening	Availability
		Achievement	Environment community manager	Total of active member
			Flat housing competition	Stage of appraisement

2.4. Research Methods

The research aim is to evaluate the user participation toward the implementation of livable flat housing program. The analysis was done by descriptive qualitative method, through data collection from various resources. The main data compiled from Surabaya City Development Board (The city detailed spatial planning), The National Statistical Institution, and survey. Analysis tools used in this study are the level of user's participation and the table of livable flat housing indicators. The participation rate may indicate high participation in Grudo flat in maintaining flat housing environment. While the livable flat indicator show the results achieved from participation occupants.

3. Results and discussion

3.1. Analysis of governments role toward livable flat housing

User participation is the key success for creating a livable place. Good regulation without community support cannot be successful. Housing and settlements dominate a city. Therefore to achieve a livable city, dwellers support in design and the programs implementation of housing is essential. Flat is one of the ways to reduce the density of houses and slums in the city. Flat need to be equipped with sewage treatment facilities and other facilities that support the concept of livable city. In addition, the role of occupant determines the sustainability of eco-friendly flats design. Based on Jenks and Dempsey (2005), Kai&Chengxin (2013), Young (2013), and (Fischer, 2000), researchers need to examine several indicators to assess the participation of residents to achieve livable housing and settlements, with the following details:

Table 4. Aspect, factor, indicator, standard and existing condition of Grudo flats

No	Aspect	Factor	Indicator	Standard	Existing Condition
1.	Human Development	Access	Housing	wide 7 M^2 per capita	4 x 6 m = 24m^2
			Education	Free charge of school (SD/SMP/SMA)	Free until SMA/K
			Health	Health insurance	Free for Surabaya society that has Surabaya ID card
				Closeness to health facility	health facility is being built in front of the flats

		Connectivity	The distance of facilities to the flat	Closeness to housing facility	The distance of flat to facilities (trade facilities and services, public facilities, the mosque, temple, post office, village, health facility, and education) is 500m /accessible by foot
			Non-motor road	The length of non-motor road 1000 people	There is pedestrian way around the flat area
2	Economic Capabilities	Growth	Community Participation	Economic outcome (urban farming)	Still in planning phase
				Online business	-
			Ability to Buy	Buying ability to basic price ratio	-
3	Preservation of Environment	Environmental Quality	Water Consumption	Water consumption per unit	The average expense is Rp 25.000,00/ month/per unit
				% people that covered by the service	100%
			Green Open Space	Percentage per total flat site	Total site = 5600 m^2 Flat = 802,5 m^2 Health facility = 900 m^2 fire fighter facilities =100 m^2 pump house = 102 m^2 Percentage green open space per total flat site is 3695,5 / 5600 = 65%
			Biodiversity Activity	The type of activity	Planting in the flat area
		Waste management	Waste	The amount of waste	-
			The implementation of 3R	3R Waste amount	Mean number of recycled waste that's produced= 3 m^3/day/ house
			Water waste management	Amount of waste water treatment plant per 1000 people	-
		Comfort	Services	% people that covered by the service	100%
		Energy	Development of green technology	Availability	Available
4	Institutional Support	Ecological policy	Green Building Policy	Total of the policy	-
			City greening	Availability	Available
		Achievement	Environment community manager	Total of active member	The coordinator and all of dwellers
			Flat housing competition	Stage of appraisement	-

In human development aspect, it can be seen that this flats has good access to support facilities. This aspect is related to the government's policy to improve the quality of life. The Surabaya city government has guaranteed the education and health of the citizens in general and accessibility of housing support facilities to the residents of the Grudo flats in particular. The size of this flats unit is intended for small families with small children. The unit size is

not large enough for family that has 2 children or more, because it needs 4 meters wide addition. So the space limitations may reflect government policy which limiting the number of occupants in the Grudo flats unit.

It could be argued that the economic capability in this flat has not been going well. The internet facility used by the dwellers for business. Efforts were made by the dweller of flats to make urban farming has yet been realized. Therefore, it required improvement in this aspect because this aspect has a great impact to the lives of the occupants. In the meantime, residents mostly utilize this flat as a residential in their working days and returned to his hometown on the weekend.

The flats have the potential in reducing energy use and have been equipped with a green open space and there are greening activities in the balcony. The residents feel comfortable staying there. There are waste processing technologies in a simple way, but waste water recycling technology and the use of solar cell integrated with the design of flats not yet available.

All the dwellers are member of environment community organization of Grudo flats. The Grudo flats have not yet joining the green and clean competition since the Grudo flats is a new flats, occupied in 2013.

It is known that the design of this flat has a good quality of human development aspect. However, the aspects of economic capabilities and preservation of the environment are not maximized because the flat is not equipped with green technology. No major conflicts that occur, the dwellers aware of their roles to maintain the cleanliness and beauty of the environment, they are also able to adapt to the environment of the flat. The problem associated with the design of the flat is the unit area is not adequate for families with children who have grown up. The existence of this flats have impact on the wider environment which is a densely populated housing. Flat housing can be used to reduce housing density as can be seen in Figure 3. Its green open space can be used by local people and increase the number of green open spaces of the city. This flat can become a precedent for local people to make their own livable place.

Fig 3. Grudo flat siteplan

Source: www.wikimapia.org

3.2. Analysis of the dweller's participations in the planning phase

Initially, the government makes policy on flat for controlling the density of housing. This shows that the government has to think about the proximity of flats with various facilities of housing and the workplace, which is a major consideration for low-income people. This flat is also equipped with internet facilities to support the activities of its inhabitants. So it can be said that this flat has been well planned by the government. Besides, the government also continues to develop area around the flat with building health center and facility for the fire department. Thus, although in the planning stage does not involve the participation of the dweller, the government seems to still consider the facilities that are not yet available in the surrounding flat.

Once the flat is habitable, residents formed a community. The community is then convened meeting to manage the flats. One of the meeting results is to request assistance from the department of cleanliness and landscaping, as

well as the department of agriculture to provide training on waste management and urban farming. Residents apply knowledge from the training well and always maintain the cleanliness of the flat. Each month there are regular meetings to discuss the condition of the flat and make suggestions for improving the quality of the flat. The active participation of the citizens of the flat can be seen in the green space that is well maintained and the presence of greenery in the balcony of the flat. The existence of the flat also does not cause social problems with the neighboring people because the flat dweller can maintain the good relationships. Precisely with the presence of this flat, the neighboring people can earn money by selling the basic needs. So the behavior of the flat dweller can affect either the continuation of flat in maintaining the environmental conditions, as well as maintaining good social relations with the neighbors.

When associated with the degree of community participation by Arnstein (1969), the condition shows that users only as object and not participate in the planning of the flats. However, dwellers actively participate in the care of the flats even take the initiative to improve the quality of the flat by creating new programs. The dwellers involve the government agencies to provide training. Based on this, the researchers assume that the degree of community participation in Grudo flat is included in the group of the highest level. However, because each degree has less specific explanation, the researchers put it on the level of partnership.

3.3. Analysis of dweller's participations in the implementation phase

The dweller's participation towards strengthening the preservation of environment:

- The dwellers plant various plants around the flat with a good landscape design that resemble tropical garden. Implicitly, this can become green open space also for housing around the flats. So the dwellers participation in keeping the green open space is important.
- Every unit has its own plant in the pots, therefore every flat dweller has responsibility of these plants. Fig 4 shows the plants around the flats.

Fig 4. Park around the flat and inner court
Source: survey, 2014

- There is also an environmental conservation effort with the use of aerobic composter to manage the waste (Fig 5). When every home had an effort like this then the city waste will be reduced. So everyone or every house contributes to shaping livable cities. So the dwellers participation which is considered as trivial thing can have a major impact when done by the majority of the citizens of the city.

Fig 5. Aerobic composter
Source: survey, 2014

The dweller's participation towards strengthening human development:

- The flat residents are joined into flat association to maintain the security of the flat. This community also hosts various social activities such as regular meetings, lectures, exercises with *kampung* dwellers. Social relations with local people maintained very well and the flats facilities can increase public confidence in the Government's efforts to organize the city, so people will more easily participate actively.

The dweller's participation towards strengthening economic capabilities:

- Broadbent Learning Center
  A facility of the Surabaya city government to improve the ability of citizens to access the internet to the ASEAN Free Trade Area (AFTA) in 2015. The presence of BLC can help people start from housewives, perpetrators of Small and Medium Enterprises (SMEs), up to students to study information technology. BLC in Grudo flat not only intended for residents who live in the Grudo flat, but also can be used by surrounding residents. Figure 6 shows the BLC facilities at Grudo flat. Dwellers participation also provides benefits to the dwellers themself, by using existing facilities effectively.

Fig 6. Internet facility
Source: survey, 2014 & *www.google.com*

- Urban Farming
  In the grudo flat is also planned implementation of urban farming such as catfish farming, mushroom cultivation, planting orchids and toga to improve the people's economy, it also meets the needs of residents independently.
- Garbage Bank
  Residents also collect waste for sale in the garbage bank each month for recycling. This is done to reduce the volume of municipal waste and to generate additional revenue for the citizens.

3.4. Analysis of dweller's participations in the evaluation phase

Community participation in the evaluation phase of the program can be seen from the regular meetings between the board and residents association every 2 months. Each activity coordinated by the chairman for the sustainability program.

4. Conclusion

In the assessment of the participation stage, it can be seen that dwellers participation toward a livable housing is high. The dweller has awareness to protect the environment and good social relationships with people around the flats. Although in the planning stages the occupants do not participate in the design of the flat, Grudo flat still being a comfortable place to live based on interview with dwellers. This is because of the dwellers' initiative in creating a livable environment and consistency in maintaining the environment of flat housing. Regular meeting to discuss the evaluation of the condition of the flat gives positive impact on the improvement of flat housing and increase the social relations between the dweller, thereby reducing the possibility of social conflict because there are a lot of people from different areas who live in the flats. The evaluation use a livable flat housing indicator shows that this flat housing is livable, but it still needs some improvements such as the use of internet facilities in an optimal way and develops alternative energy.

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